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Social Anxiety and Drinking Behaviors in College Students: Mediated by Alcohol Outcome Expectancies Specific to Social Situations?

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Social Anxiety and Drinking Behaviors in College Students:

Mediated by Alcohol Outcome Expectancies Specific to Social Situations?

(TITLE)

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Toby Board

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Social Anxiety and Drinking Behaviors in College Students: Mediated by Alcohol
Outcome Expectancies Specific to Social Situations?

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Clinical Psychology Master's Program

2018

Abstract

Understanding the relationship between social anxiety and problematic drinking is a difficult task. Studies examining this relationship have commonly found a positive correlation between social anxiety and drinking behaviors, although the literature is marked by mixed results. If social anxiety does positively predict alcohol use, then what accounts for this relationship? Some researchers posit that alcohol outcome expectancies may be a mediator for this relationship. Alcohol outcome expectancies specific to the context of social evaluative situations may be a stronger mediator than general alcohol outcome expectancies. A study to test this mediation was conducted with xxx undergraduate students. Results showed that alcohol outcome expectancies specific to socially evaluative situations significantly mediated the relationship between social anxiety and problematic drinking. Also, alcohol outcome expectancies specific to socially evaluative situations was a stronger mediator in the relationship between social anxiety and problematic drinking than general positive alcohol outcome expectancies. Regression analyses showed that after controlling for social anxiety and demographic variables, fear of negative and fear of positive evaluation were not significant predictors of problematic drinking, though alcohol outcomes expectancies specific to socially evaluative situations remained a significant predictor.

Social Anxiety and Drinking Behaviors in College Students:

Mediated by Alcohol Outcome Expectancies Specific to Social Situations?

College is a major transitional period for many individuals. In many cases, college life involves attending social gatherings where consumption of alcohol is common, possibly even encouraged. The social aspect of college may become increasingly difficult to handle for individuals who have problems with social anxiety (Schry, Roberson-Nay, and White, 2012; Ham & Hope, 2006). Socially anxious individuals have to make a choice between facing the discomfort of social situations in an attempt to experience college life or attempting to avoid these situations, which may be less anxiety provoking but also may prevent them from having an authentic college experience (Ham & Hope, 2006). Social anxiety typically involves a fear of evaluation, either negative or positive (Bogels et al., 2010; Wallace & Alden, 1995; Weeks et al., 2010). Fear of negative evaluation occurs when an individual is afraid of being judged negatively by others (Bogels et al., 2010). Fear of positive evaluation, a relatively new concept, occurs when an individual is afraid of being praised by others in fear of not being able to live up to the new expectations derived from that praise (Wallace & Alden, 1995; Weeks et al., 2010).

The relationship between problematic drinking and social anxiety is a commonly studied topic. Although there have been mixed results (Buckner et al., 2009; Ham, 2009; Ham, Zamboanga, Bacon, & Garcia, 2009; Kushner, Abrams, & Borchardt, 2000), the most common finding is a positive link. Researchers theorize that alcohol use may make social situations more tolerable to individuals with social anxiety by relieving their fears of evaluation and other anxiety symptoms (Khantzian, 1985; Quitkin, Rifkin, Kaplan, &

Klein, 1972; Tran, Haaga, and Chambless, 2002). Researchers have described this use of alcohol as a “self-medicating” coping strategy (Khantzian, 1985; Quitkin, Rifkin, Kaplan, & Klein, 1972). This relationship may be mediated by alcohol outcome expectancies, the outcomes an individual believes alcohol use is likely to result in (Tran, Haaga, and Chambless, 2002). The belief that drinking alcohol may help alleviate the symptoms of social anxiety is an example of a positive alcohol outcome expectancy. Alcohol expectancies can be either positive, meaning they are beneficial, or negative, meaning they are problematic (Brown, Goldman, Inn, & Anderson, 1980; Goldman, Del Boca, & Darkes, 1999; Ham, Carrigan, Moak, and Randall, 2005). Studies have shown that alcohol expectancies may be influential in the relationship between problematic drinking and social anxiety (Ham, Carrigan, Moak, and Randall, 2005; Kidorf & Lang, 2009; Tran, Haaga, and Chambless, 2002).

This paper will review the literatures on social anxiety, fear of evaluation, alcohol outcome expectancies, and problematic drinking, as well as the relationships among these variables. Then, the current study will be described that was designed to examine alcohol outcome expectancies specific to socially evaluative situations as a mechanism through which social anxiety may be linked to problematic drinking. This study examined the correlation between social anxiety and problematic drinking as mediated by alcohol outcome expectancies specific to socially evaluative situations.

Social Anxiety

According to Vriends and colleagues (2014), social anxiety is described as a persistent fear of situations in which an individual may be evaluated. This fear may result in these individuals preferring to be alone, becoming depressed, abusing

substances, and/or many other negative outcomes (Vriends et al., 2014). Socially anxious individuals have distorted thoughts about how others perceive them (Vriends et al., 2014). This, in turn, may lead to a hypersensitivity to being evaluated negatively. Thus, individuals with social anxiety problems tend to be affected more by the way that others view them compared to less socially anxious individuals (Carrigan and Drobles, 2004). In addition to worrying about what others think about them, socially anxious individuals tend to negatively self-evaluate themselves, an example being a belief that they lack social skills or positive personality characteristics.

The fear of being evaluated and the constant negative self-evaluation may lead to distress in these social situations as well as problematic anxiety-related symptoms (Vriends et al., 2014). Socially anxious individuals tend to cope with their fear of social situations by using avoidance, which can be either cognitive (e.g., distracting themselves) or behavioral (e.g., completely avoiding the situation or drinking). Avoidance, either cognitive or behavioral, tends to be what socially anxious individuals think is the quickest way of relieving their intense anxiety-related symptoms (Beck, Emery, & Greenberg, 1985).

Social anxiety has become increasingly more common in traditional-aged college students (Schry, Roberson-Nay, & White, 2012). The prevalence rate of social anxiety disorder has been found to be approximately 19% in undergraduate students (Van Ameringen, Mancini, & Farvolden, 2003; Beidel, Turner, Stanley, & Dancu, 1989); whereas, other studies have found the prevalence rates of social anxiety in college-aged students to be as high as 33%. These rates are elevated compared to the general population's prevalence of 7 to 13% (Russell & Shaw, 2009).

Why is social anxiety so prevalent in college students? College is a social environment where students make a major transition from late adolescence into early adulthood. Going to college involves many situations that could provoke extreme anxiety for persons with social anxiety. College involves the gathering of thousands of students on a daily basis leading to a dense population on campus and a social network that may be far larger than those found in high school or adult life (Nordstrom, Goguen, & Hiester, 2012). Many college classes may enroll hundreds of students and may involve an individual's first experiences with public presentations. Likewise the college living environment (e.g., dormitories) can be distressing for socially anxious individuals because of the close living quarters and the dense population of other students. College involves a high degree of socialization, suggesting college may be highly distressing for socially anxious individuals if they do not learn to cope with their anxiety (Nordstrom, Goguen, & Hiester, 2012).

Age may be another factor involved in the high rates of social anxiety in college students. Their age, typically 18 to 22 years, places them between the typical ages of onset and the worsening of social anxiety symptoms. The age of onset is between 10 to 16 years old, and symptoms generally continue to worsen until approximately the age of 24 years before stabilizing (Nordstrom, Goguen, & Hiester, 2012).

The symptoms associated with social anxiety may be highly distressing to college students. Schry, Roberson-Nay, and White (2012) reported that social anxiety is related to students being less assertive and seeming more vulnerable to their peers. Likewise, social anxiety in college students is correlated positively with levels of alcohol use and social isolation (Dahl & Dahl, 2010). College students tend to avoid reporting their

symptoms until it becomes extremely distressing or impairing (Schry, Roberson-Nay, and White, 2012), likely due to the students' fears of how they will be viewed if they report their symptoms.

Fear of Evaluation

Fear is a word commonly associated with social anxiety. Social anxiety involves an individual having an overwhelming fear of being evaluated or judged. Fear of negative evaluation (FNE) is the most common fear associated with social anxiety (Bogels et al., 2010). Individuals high in fear of negative evaluation typically will avoid social situations where they may be judged or evaluated negatively. Individuals with high fear of negative evaluation tend to have a recurring belief of being judged by others negatively in nearly all social situations, including recreational, professional, and educational settings (Bogels et al. 2010; Heimberg et al. 2014). Avoidance behaviors are common among individuals with high levels of fear of negative evaluation, such as situational avoidance or complete distraction. These individuals use avoidance behaviors to distance themselves, both psychologically and physically, from these evaluative situations (Ginsburg et al. 1998). Heimberg and colleagues (2014) found that individuals with high levels of fear of negative evaluation may fear not only embarrassment or negative judgment but also offending others accidentally or being rejected.

Socially anxious individuals are hypersensitive to evaluation, meaning that they are affected highly by rejection, negative evaluation, and humiliation. This sensitivity to evaluation in turn may lead to even more difficulties (Heimberg et al. 2014). Persons high in fear of negative evaluation also have fear of their anxiety symptoms being

noticed by others, likely due to concerns that others will consequently evaluate them negatively (Bogels et al. 2010).

Fear of negative evaluation has been viewed as a core component of social anxiety. since early research by Marks and Gelder (1966) stated that social phobia involved a strong fear of scrutiny. Every Diagnostics and Statistical Manual (DSM) published by the American Psychiatric Association (APA) since 1966, including the current DSM-5 (APA, 2014), has contained some form of negative evaluation as a key component of social anxiety.

Wallace and Alden (1995) found that some socially anxious individuals also fear being publicly judged favorably due to subsequent heightened expectations and the resulting fear of not being able to live up to these new heightened expectations (Wallace & Alden, 1995). Weeks, Heimberg, and Rodebaugh (2008) created a scale for this newly proposed cognitive component of social anxiety, which they describe as a fear of positive evaluation (FPE). Fear of positive evaluation is the fear of being publicly judged positively, which may make individuals feel as though they are in the spotlight and must live up to this new level of expectations (Weeks et al., 2010).

Cognitive behavioral models (Lipton et al. 2014) propose that individuals with high fear of positive evaluation have a fear of being directly compared to others because the judgement is not just positive but also public. Individuals may fear that this public competition with others will bring an increase in the level of attention they receive. For example, persons who fear positive evaluation may fear that this public spotlight will ultimately set them up for future failure and then result in the audience being disappointed that they did not live up to their heightened expectations (Lipton et al,

2014). Fear of positive evaluation is a relatively new concept and only a small number of studies have examined this component of social anxiety.

Though fear of positive evaluation is a relatively new concept, its relationship with fear of negative evaluation has been examined, with multiple causal theories forwarded (Weeks, Heimberg, Rodebaugh, Goldin, and Gross, 2012). Multiple studies have found that fear of positive evaluation and fear of negative evaluation are correlated positively (Weeks & Howell, 2012; Sluis & Boschen, 2014). Weeks and Howell (2012) indicated that, when viewing social anxiety through a psycho-evolutionary point of view, fear of negative evaluation and fear of positive evaluation may serve distinctly separate adaptive goals for socially anxious individuals. Fear of positive evaluation individuals may view themselves as lower on the social hierarchy compared to other individuals, causing them to persistently avoid creating a positive impression to avoid being viewed as a threat. Individuals with high fear of positive evaluation also fear being evaluated negatively, fearing that they will then be excluded from the group. These individuals avoid being promoted up the hierarchy too quickly and to avoid being viewed negatively and falling out of the social group. According to Sluis and Boschen (2014), social anxiety is used as a mechanism to create a balance for oneself within a social group; this mechanism can be activated by worries about either positive evaluation or negative evaluation.

Some theories state that fear of negative evaluation and fear of positive evaluation may be related but distinct components of social anxiety. This theory has been described as the 'bivalent fear of evaluation model' (Weeks & Howell, 2012, p. 84). Weeks and Howell (2012) have found strong support for the bivalent fear of evaluation model.

Specifically, fear of positive evaluation has a stronger relationship with concerns of social retaliation due to being evaluated favorably compared to that of fear of negative evaluation. Only fear of positive evaluation related negatively to trait positive affect/automatic thought. Fear of negative evaluation, fear of positive evaluation, and social anxiety in general were related positively to trait negative affect/automatic thoughts. Individuals high in fear of positive evaluation tend to disqualify favorable social experiences and outcomes, believing that these outcomes were not due to their own ability (Weeks & Howell, 2012). Both types of fear of evaluation may lead to problematic behaviors, such as depression, avoidance, and problematic drinking.

Problematic Drinking

Drinking alcohol and college life have long been associated with each other. Terlecki, Buckner, Larimer, and Copeland (2015) found that recreational drinking is common in college students. Approximately 40% of college students have engaged in binge drinking behavior in the past 14 days (Johnston, O'Malley, Bachman, Schulberg, & Patrick, 2013). Binge drinking is more common in college students compared to the general population. Binge drinking is described as having five drinks per two-hour period for men and four drinks in the same period for women (Terlecki, Buckner, Larimer, & Copeland, 2015). Substance Abuse and Mental Health Services Administration (SAMHSA, 2013) conducted a national survey on drug use and health. The national survey found that full-time college students were more likely to be current, binge, or heavy drinkers (59.4% current, 39.0% binge, and 12.7% heavy drinkers) compared to part-time students or unenrolled individuals (50.6% current, 33.4% binge, and 9.3% heavy drinkers).

Binge and heavy drinkers are at great risk for experiencing problems and negative consequences from their drinking, such as unsafe sexual encounters, dangerous situations, and physical injury (Linden, Lau-Barraco, & Millettich, 2013). Though they may be at high risk for problems, it does not necessarily mean that the drinking itself is problematic. One major problem with this research is the lack of a consistent definition of problematic drinking (Clements, 1999). Most studies have measured problematic drinking by examining either drinking rates or frequency, with few examining negative consequences due to alcohol. Rates are usually described as the number of standard drinks; whereas frequency is the number of days individuals drink alcohol. Problematic drinking is commonly conceptualized in terms of 'binges.' However, binge drinking itself is defined inconsistently. Wechsler, Dowdall, Davenport, & Castillo (1995) describe binge drinking as five or more drinks in one sitting for males and four or more drinks in one sitting for females. Whereas, Terlecki and colleagues (2015) are specific about the time period and define binge drinking as five or more drinks in a 2-hour period for males and four or more drinks in a 2-hour period for females. Though this difference in time period may seem minor, it can make a major difference when measuring drinking problems (Terlecki, Buckner, Larimer, & Copeland, 2015).

In the current study, we will use the Alcohol Use Disorders Identification Test (AUDIT; Babor, La Fuente, Saunders, & Grant, 1992) that examines not only frequency and quantity but also negative consequences. Assessing negative consequences is important in determining whether a person's drinking has become "problematic" (Babor, La Fuente, Saunders, & Grant, 1992).

Social Anxiety and Problematic Drinking

Social anxiety and alcohol use are commonly comorbid (e.g., Buckner et al., 2008; Buckner et al., 2009; Grant et al., 2005; Kushner, Abrams, & Borchardt, 2000; Lewis et al., 2008). Grant and colleagues (2005) found that nearly half of individuals with social anxiety disorder also meet criteria for alcohol use disorder, which is significantly higher than the 18.6% found in the general population. Individuals with social anxiety disorder have significantly higher rates of alcohol abuse compared to other types of anxiety disorders as well (Buckner et al., 2008). Having social anxiety increases an individual's risk for alcohol use disorders significantly. The increase in risk is significant enough that some researchers assert that social anxiety could be viewed as a risk factor for alcohol use disorder (Buckner et al., 2009).

Kushner and colleagues (2000) posit three main theories that have been forwarded to help explain why social anxiety and alcohol abuse are commonly comorbid. The first theory is that a socially anxious individual uses alcohol to cope with the symptoms of social anxiety, which is commonly described as "self-medicating. The second theory is that alcohol use leads to anxiety disorders. This is where problems due to using and/or withdrawing from alcohol could lead directly to social problems (e.g., loss of support). The third theory is that a third factor (e.g., genetics) causes the high rate of comorbidity to occur (Kushner, Abrams, & Borchardt, 2000).

The theory that anxiety problems directly cause problematic drinking is the best supported theory and thus will be the main theory used in this study. This theory was developed from early research findings that alcohol may be a tension reducer (Kushner, Abrams, and Borchardt, 2000). Conger (1956) created the tension-reduction hypothesis, which states that alcohol not only reduces stress but also causes individuals to think they

may gain something from the tension reducing effect. The tension-reduction hypothesis was a popular topic of research for many years, eventually evolving into the “self-medication hypothesis” (Khantzian, 1985; Quitkin, Rifkin, Kaplan, & Klein, 1972). This self-medication hypothesis is a more detailed and individually-focused version of the tension-reduction hypothesis. The self-medication hypothesis theorizes that individuals who experience high levels of anxiety attempt to cope by using the pharmacological and psychological effects (e.g., tension reduction and heightened social confidence) of a substance. Chatuape and de Wit (1995) created an outline for how this effect occurs and the reinforcement that follows. They stated that individuals with anxiety experience anxiety symptoms and use alcohol to relieve anxiety symptoms; then the resulting negative reinforcement from the removal of the symptoms may cause these individuals to drink more often and excessively (Chatuape & De Wit, 1995).

Socially anxious college students are particularly vulnerable to having this comorbidity involving both problematic drinking and social anxiety. Many recreational activities in college involve alcohol and many of the college environments provide easy access to alcohol. In college, excessive, recreational drinking is not outside of the norm and in many cases is encouraged (Ham & Hope, 2006). Socially anxious individuals have been found to be at high risk for excessive alcohol use that leads to negative consequences, usually described as ‘problematic drinking’ (Lewis et al., 2008). Studies show that this relationship is likely due to factors such as the ease of access to alcohol, excessive alcohol use being normalized, and the use of self-medication for anxiety (Tran et al., 1997; Lewis et al., 2008).

Most researchers theorize a link between alcohol use and social anxiety, though research has resulted in mixed findings. Specifically, some studies have found a positive correlation between social anxiety and alcohol use (Gilles, Turk, & Fresco, 2006; Hartman, 1986; Stewart, Morris, Mellings, & Komar, 2006; Lewis et al., 2008); whereas other studies have found a negative relationship between these variables (Ham, 2009; Ham, Zamboanga, Bacon, & Garcia, 2009), and some studies have failed to find a significant association between social anxiety and problematic drinking (Buckner, Bonn-Miller, Zvolensky, & Schmidt, 2007).

Some researchers theorize that the mixed findings are due to the lack of a consensus definition of problematic drinking. Tran and colleagues (1997) used only amount and frequency of use to assess whether participants experienced problematic drinking. Using only quantity and frequency may result in many college students being labeled as problematic drinkers when in actuality they are simply experiencing normal college behaviors. When simply examining quantity and frequency, we do not gain insight into whether the drinking is necessarily problematic. Some studies have added negative effects and consequences of drinking to their assessment of problematic drinking to help better differentiate between common recreational drinking in college students and actual problematic drinking (Ham & Hope, 2005, Lewis et al., 2008). Even though this literature is composed of mixed findings, the general consensus is that there seems to be a positive link between social anxiety and problematic drinking. Research should also focus on possible mechanisms for this relationship. One possible mechanism that has received a great deal of attention is alcohol expectancies.

Alcohol Expectancies

Expectancy theory states that alcohol expectancies are the thoughts or beliefs an individual has about the consequences of drinking alcohol (Brown, Goldman, Inn, & Anderson, 1980; Goldman, Del Boca, & Darkes, 1999). These expectancies can be either positive (beneficial) or negative (problematic). Although they can be labeled as positive or negative expectancies, these are subjective. For example, drinking alcohol and becoming clumsy can be a negative consequence to one person whereas it may be a positive consequence to another (Ham, Carrigan, Moak, and Randall, 2005). For example, a person who likes to be in the spotlight may enjoy the attention they get for being clumsy when drinking; whereas someone with social anxiety may abhor this same spotlight.

Although similar, alcohol expectancies are different from drinking motives. Alcohol expectancies are what an individual thinks the consequences will be if they drink alcohol; whereas drinking motives are the actual reasons an individual chooses to consume alcohol (Cooper, 1994). The key difference is that an individual may have a belief about the effects of alcohol and the possible consequences but not drink to achieve that specific outcome; thus, they have alcohol outcome expectancies but do not have a drinking motive. An example would be an individual having a positive alcohol expectancy that alcohol helps relieve tension, but their drinking motives for going out with friends on a certain occasion may be due to a specific event, such as a birthday party or other celebration. They are distinct constructs and should not be confused with each other (Cooper, 1994).

Expectancy theory (e.g., Brown, Goldman, Inn, & Anderson, 1980) states that alcohol outcome expectancies (AOE) are one of the major mechanisms an individual uses to

choose whether or not to consume alcohol. Endorsing positive alcohol outcome expectancies, expectancies about the positive effects from consuming alcohol such as believing alcohol reduces tension, have been found to lead an individual to drink more often. Whereas, endorsing negative alcohol outcome expectancies, or the problematic effects of consuming alcohol such as blacking out, lead an individual to drink less often (Brown, Goldman, Inn, & Anderson, 1980).

Kidorf and Lang (2009) expanded on the tension-reduction hypothesis. They investigated trait social anxiety and alcohol expectancies predicting increased consumption of alcohol in stressful situations. They found that participants had higher alcohol consumption during stressful sessions compared to less stressful sessions. In addition, both individuals high in trait anxiety and men expecting alcohol to increase assertiveness had significantly higher alcohol consumption. This research helps explain how alcohol may be used by individuals to reduce stress, but this study did not focus specifically on social anxiety. More recent research on alcohol expectancies specific to social anxiety found that many of the commonly used scales were not specific enough for situations that provoke social anxiety (Kidorf & Lang, 2009).

Tran, Haaga, and Chambless (2002) compared commonly used scales for alcohol expectancies (i.e., the Alcohol Expectancy Questionnaire (AEQ) and Drinking Expectancies Questionnaire (DEQ)) against an expectancy scale that focused specifically on social situations - the Alcohol Expectancy in Social Evaluative Situations (AESES). Based on this study, they asserted that the AESES was more appropriate for social situations than these other scales. Socially anxious individuals focused their worry mainly on social situations. They also found that socially anxious individuals with alcohol use

disorder diagnoses scored significantly higher on the AESES than individuals without an alcohol use diagnosis. This finding suggests that alcohol outcome expectancies specific to social evaluative situations may be a major factor in the relationship between social anxiety and alcohol use (Tran, Haaga, and Chambless, 2002).

Alcohol Expectancies and Fear of Evaluation

As stated earlier, alcohol expectancies may be an important factor in the link between alcohol use and social anxiety. Studies have found that individuals with social anxiety drink to reduce their anxiety and 'self-medicate' themselves. When considering alcohol expectancies and fear of negative evaluation, no research to our knowledge has yet examined the relationship between fear of negative evaluation and alcohol expectancies. Though there may not be explicit research for this link, research examining social anxiety and alcohol expectancies may be of use. That is, fear of negative evaluation has been conceptualized as a key component of social anxiety, so it has thus been indirectly included in prior studies. When considering alcohol expectancies in terms of fear of negative evaluation, persons with social anxiety and concurrent positive but not negative alcohol outcome expectancies would therefore be likely to drink when confronted with socially evaluative situations (Ham, Carrigan, Moak, and Randall, 2005).

Persons with high fear of negative evaluation would most likely have positive beliefs about the consequences of drinking (e.g., sociability and relaxation) as opposed to negative beliefs about the consequences of drinking (e.g., stumbling and poor decision making). Tran, Haaga, & Chambless (1997) also state that these alcohol expectancies most likely are focused directly toward consequences involving socially evaluative situations. Socially anxious individuals are not necessarily worried about the possible

positive or negative consequences if they drink by themselves or in other non-evaluative situations, but instead they are solely worried about the consequences of drinking in socially evaluative situations (Tran, Haaga, & Chambless, 1997).

The relationship between fear of positive evaluation and alcohol outcome expectancies has not been studied. All research on social anxiety and alcohol outcome expectancies has assumed that social anxiety involved only fear of negative evaluation as opposed to both fear of negative evaluation and fear of positive evaluation. Fear of negative evaluation and fear of positive evaluation are similar but have major differences that are important to note. Weeks and Howell (2012) found that fear of positive evaluation had a strong relationship with concerns of social retaliation due to being evaluated favorably by others, which was not found for fear of negative evaluation. Fear of positive evaluation was also found to relate positively to trait negative affect/automatic thoughts, similar to fear of negative evaluation. Yet, fear of positive evaluation also related negatively to trait positive affect/automatic thoughts. Persons high in fear of positive evaluation as opposed to fear of negative evaluation tend to avoid being viewed favorably in an attempt to avoid being judged as competition by others (Weeks & Howell, 2012). Though many of the aspects of fear of positive evaluation are similar to fear of negative evaluation, fear of positive evaluation may be related to different alcohol outcome expectancies than is fear of negative evaluation.

Hypotheses

Although there have been mixed findings, studies have generally found a positive link between social anxiety and alcohol use. To date, one of the most promising mechanisms of this relationship appears to involve person's expectancies regarding likely

outcomes of their drinking. Thus, we proposed a study to examine this mediated relationship.

Hypothesis 1: Examined the relationships among social anxiety, alcohol outcome expectancies, fear of evaluation, and problematic drinking.

Hypothesis 1a: Examined the relationship of social anxiety and problematic drinking: we predicted that they would be correlated positively.

Hypothesis 1b: Examined the relationship of social anxiety and positive alcohol outcome expectancies specific to socially evaluative situations: we predicted that they would be correlated positively.

Hypothesis 1c: Examined the relationship between social anxiety and fear of evaluation (FNE and FPE): we predicted that social anxiety would be correlated positively with FNE and FPE.

Hypothesis 1d: Examined the relationship between fear of evaluation (FNE and FPE) and problematic drinking: we predicted FNE and FPE would be correlated positively to problematic drinking.

Hypothesis 1e: Examined the relationship between fear of evaluation (FNE and FPE) and alcohol outcome expectancies specific to socially evaluative situations: we predicted FNE and FPE would be correlated positively to alcohol outcome expectancies specific to socially evaluative situations.

Hypothesis 1f: Examined the relationship between alcohol expectancies specific to socially evaluative situations and problematic drinking: we predicted alcohol outcome expectancies specific to socially evaluative situations would be correlated positively to problematic drinking.

Hypothesis 1g: Examined the relationship between positive general alcohol expectancies and problematic drinking: we predicted general positive alcohol outcome expectancies would be correlated positively to problematic drinking.

Hypothesis 2: Examined the relationship between social anxiety and problematic drinking as mediated by alcohol expectancies: we predicted that alcohol expectancies would be a significant mediator for the relationship between social anxiety and problematic drinking.

Hypothesis 2a: Examined the relationship between social anxiety and problematic drinking as mediated by alcohol outcome expectancies specific to socially evaluative situations: we predicted that alcohol outcome expectancies specific to socially evaluative situations would be a significant mediator for the relationship between social anxiety and problematic drinking.

Hypothesis 2b: Examined the relationship between social anxiety and problematic drinking as mediated by general positive alcohol outcome expectancies: we predicted that general positive alcohol outcome expectancies would be a significant mediator for the relationship between social anxiety and problematic drinking.

Hypothesis 2c: Examined the relationship between social anxiety and problematic drinking as mediated by alcohol expectancies: we predicted that alcohol expectancies specific to socially evaluative situation would be a stronger mediator for the relationship between social anxiety and problematic drinking compared to general alcohol expectancies.

Hypothesis 3: The predictors for problematic drinking were examined using a hierarchical regression model. Demographic variables (e.g., age, gender) were entered as block one to control for these factors. Social anxiety (SIAS) were entered as block two to control for the direct relationship and allow subsequent blocks to consist of possible mechanisms for the relationship between social anxiety and problematic drinking. Fear of evaluation (FNE and FPE) was entered as block three and alcohol outcome expectancies specific to socially evaluative situations was entered as block four. Thus, we were able to determine whether these final two blocks were still significant predictors after controlling for the direct relationship between social anxiety and problematic drinking: we predicted that FNE, FPE, and AESES would remain significant predictors of social anxiety after controlling for social anxiety and demographic variables.

Method

Participants

Participants consisted of undergraduate students enrolled in Introductory Psychology at Eastern Illinois University. They received course credit for participating in the study. Originally, this study was proposed using regression, and an a priori power analysis indicated that a sample of approximately 85 would be needed to detect a medium effect size. However, the data were better suited to being analyzed via structural equation modeling (SEM), which this author learned in his new graduate program. Regarding power, Boomsma (1983;1985) has recommended a sample of at least 100 participants in order to use structural equation modeling. Students 18 years or older were allowed to participate in the study, although only data from individuals within the typical college age

range (i.e., 18-22 years old) were analyzed, as the study focuses on college drinking, which may vary among older, nontraditional students. Data from three participants older than 22 years were excluded from the study; likewise, data from 15 individuals who did not complete any or most of the measures also were excluded from the study. Finally, questionnaire responses were examined, and data from five participants were deleted due to scores fitting into the category of outlier.

The final sample of 106 participants consisted of 78 females (74%) and 28 males (26%) between the ages of 18 and 22 years ($M=19.34$, $SD= 1.33$). In terms of race/ethnicity, 63 participants endorsed "Caucasian" (59.4%), 35 as "African-American" (33%), 5 as "Hispanic or Latino/a" (4.7%), 1 as "Asian or Pacific Islander" (0.9%), 1 as Biracial (0.9%), and 1 as "Other" (0.9%). With regard to status, 104 participants described themselves as "Single" (98.1%), 1 as "Married/Partnered" (0.9%), and 1 as "Divorced" (0.9%).

Procedure

Participants were recruited using a subject pool from the Psychology Department. Participants completed a packet of questionnaires online. The questionnaires were counter-balanced to avoid order effects. A consent form was presented online to each participant at the beginning of the study. Participants completed most of the associated questionnaires by selecting a box next to their chosen answer. The demographic questionnaire and the Alcohol Use Disorder Identification Test (AUDIT) contained some questions that involved typing short responses. A study debriefing was provided at the end of the study. Participants could print out and save both the debriefing and the consent

forms for their own records if desired. Participants were rewarded class credit for participating in the study.

Measures

Demographics

A demographic questionnaire designed for this study requested participant information, including age, sex, marital status, and race/ethnicity.

Social Anxiety Symptoms

The Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998) was used to assess symptoms of social anxiety. Mattick and Clark developed the SIAS in 1998 to provide an evaluation of social anxiety symptoms. The SIAS is a self-report measure created to assess reactions to social interaction situations, such as one-on-one conversations or group interactions. The SIAS consists of 20 items that are rated on a 5 point Likert scale ranging from 0 to 4. A sample item is “I have difficulty making eye contact with others.” The SIAS is scored by summing all items, with higher scores indicative of greater symptom severity. The SIAS has been shown to have high internal consistency ranging from 0.86 to .94 (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992; Osman, Gutierrez, Barrios, Kopper, & Chiros, 1998; Mattick & Clarke, 1998). It has also shown high short-term retest reliability ranging from 0.66 to 0.93 (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992; Osman, Gutierrez, Barrios, Kopper, & Chiros, 1998; Mattick & Clarke, 1998).

Fear of Negative Evaluation

The Brief Fear of Negative Evaluation Scale II (BFNE-II; Carleton, McCreary, Norton, Asmundson, 2006) was used to assess fear of negative evaluation. The BFNE-II

is an updated version of the BFNE (BFNE; Leary, 1983) which is a condensed version of the Fear of Negative Evaluation scale created by Watson and Friend (1969) which consisted of 30-items on a 5-point Likert-scale. The BFNE-II is a 12-item self-report scale that measures an individual's level of fear of negative evaluation. Each item consists of a 5-point Likert-scale ranging from 1 to 5, where 1 = "not at all characteristic of me" and 5 = "entirely characteristic of me." Elevated scores on the BFNE-II suggest a higher endorsement of fear of negative evaluation. A sample item is: "I am frequently afraid of other people noticing my shortcomings." Studies have found the BFNE-II to have a strong internal consistency of 0.95 (Carleton, McCreary, Norton, Asmundson, 2006; Carleton, Collimore, & Asmundson, 2007).

Fear of Positive Evaluation

Fear of Positive Evaluation Scale (FPES) was used to measure fear of positive evaluation. The FPES was created by Weeks and colleagues (2008a) to assess and individual's fear of being evaluated favorably. The FPES is a self-report measures that consists of 8-items rated on a 10-point Likert-scale that ranges from 0 to 10, where 0 = "not at all true" to 10 = "very true." Elevated scores on the FPES suggest a higher level of fear of positive evaluation. A sample is: "If I have something to say that I think a group will find interesting, I typically say it." The FPES has been found to have strong internal consistency with α 's ranging from .80 to .86 (Fergus et al., 2009; Rodebaugh et al., 2012; Weeks et al., 2008a; Weeks et al., 2008b; Weeks et al., 2010; Weeks et al., 2012). The FPES has also been found to have strong test-retest reliability with intra-class correlation coefficient = .70 and $r = .80$ (Weeks et al., 2008a; Weeks et al., 2012).

Alcohol expectancies.

The Comprehensive Effects of Alcohol Questionnaire was used to assess alcohol expectancies (CEOA; Fromme, Stroot, & Kaplan, 1993). The CEOA consists of 38 items that assess both positive and negative alcohol outcome expectancies. Participants rate items on a 4-point scale (ranging from disagree to agree) 38 possible alcohol outcomes. The items consist of two different types of expectancies: positive and negative. The positive alcohol outcome expectancies are broken into four subscales: sociability, tension reduction, liquid courage, and sexuality, which make up 20 items of the questionnaire. An example of a positive alcohol outcome expectancy item would be "I would be humorous." The negative alcohol outcome expectancies are divided into three subscales: self-perception, cognitive and behavioral impairments, and risk and aggression, which make up 18 items on the questionnaire. An example of a negative alcohol outcome expectancy item would be "My responses would be slow." The CEOA displays an adequate amount of temporal stability, structural validity and internal validity (CEOA; Fromme, Stroot, & Kaplan, 1993).

The Alcohol Expectancies for Social Evaluative Situations (AESES) scale was given to participants to assess alcohol expectancies specific to social situations. The AESES measures an individual's expectations of positive outcomes from consuming alcohol in socially evaluative situations. The AESES is a 10-item scale rated on a 5-point scale. Higher scores result in a more positive expectancies on alcohol consumption specific to socially evaluative situations. The AESES has been found to have strong internal consistency, with Cronbach's alpha from 0.84 to 0.89 (Bruch et al., 1992). The AESES has also been found to be highly correlated with a short form of the Alcohol Expectancy Questionnaire (Cooper, Russell, & George, 1988).

Drinking Behavior

The Alcohol Use Disorder Identification Test (AUDIT) was used to assess drinking behavior in participants (AUDIT; Babor, La Fuente, Saunders, & Grant, 1992). The AUDIT was created by the World Health Organization (WHO) to assess problematic drinking and alcohol abuse disorders. The AUDIT is a 10-item scale. Items 1-3 are to measure alcohol use quantity and frequency, a sample item being “How often do you have a drink containing alcohol?” Items 4 to 6 measure alcohol dependence (e.g., “During the past year, how often have you failed to do what was normally expected of you because of drinking?”). Items 7 to 10 measure issues associated with alcohol use (e.g., “Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?”). The AUDIT is scored from 0 to 40, with scores of 8 or more indicating hazardous alcohol use and scores greater than 13 in women or 15 in men identify a dependence on alcohol. The AUDIT was found to have strong internal consistency with a Chronbach’s Alpha ranging from 81-93% (Kokotailo et al., 2004; Pal et al., 2004; Reinert & Allen, 2002, 2007). It also had high test-retest reliability with a total score correlation ranging from .84 to .95 (Dybek et al., 2006; Kim, Gulick, Nam, and Kim. 2008; Selin et al., 2003).

Results

Preliminary analyses are shown in Figure 1 and included the mean, standard deviation, and internal consistency (α) for each measure or subscale used in the study. Zero-order correlation examined links between the primary study variables which are shown in Table 2. Exploratory independent t-tests tested for differences based on sex or race/ethnicity. Path analyses were used to test the mediation effect of both alcohol

expectancies specific to socially evaluative situation and general alcohol expectancies. A parallel mediation path analysis was used to compare the mediating effects of alcohol expectancies specific to socially evaluative situation and general alcohol expectancies. Finally, a hierarchical linear regression was conducted to test whether alcohol expectancies specific to socially evaluative situation and both FNE and FPE were significant predictors for problematic drinking.

Data Management Issues

The two mediation models proposed for this study are shown in Figure 1. The parallel mediation model comparing the strength of the two mediators is shown in Figure 2. This model included a link between social anxiety and drinking behavior as mediated by alcohol expectancies specific to socially evaluative situations and general positive alcohol outcome expectancies. The total score on the SIAS was used to describe “social anxiety.” “Problematic drinking” referred to the participants’ total scores on the AUDIT. “Alcohol expectancies specific to socially evaluative situations” referred to the participants’ total score on the AESES. “General alcohol outcome expectancies” referred to the participants’ total score on the positive items of the CEOA.

Descriptive Statistics

Cronbach’s alphas (see Table 1) were calculated for all study scales and were found to be satisfactory to excellent. The alpha for the total score for the SIAS ($\alpha = .904$) was excellent and comparable to the published norms for the measure (c.f., Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992; Mattick & Clarke, 1998; Osman, Gutierrez, Barrios, Kopper, & Chiro, 1998; Rodebaugh, Woods, Heimberg, Liebowitz, & Schneier, 2006). Also, alphas for the FNE ($\alpha = .949$), FPE ($\alpha = .805$), CEOAP ($\alpha = .902$), AESES

($\alpha = .919$), and AUDIT ($\alpha = .871$) were all strong and comparable to the published norms of the measures (c.f., Bruch et al., 1992; Carleton, McCreary, Norton, & Asmundson, 2006; Fried & Dunn, 2012; Herschl, McChargue, MacKillop, Stoltenberg, & Highland, 2012; Weeks, Heimberg, Rodebaugh, Goldin, & Gross, 2012). Likewise, means and standard deviations (see Table 1) for the main measures were comparable to those found in similar studies (c.f., Bruch et al., 1992; Carleton, McCreary, Norton, & Asmundson, 2006; Fried & Dunn, 2012; Herschl, McChargue, MacKillop, Stoltenberg, & Highland, 2012; Rodebaugh, Woods, Heimberg, Liebowitz, & Schneier, 2006; Weeks, Heimberg, Rodebaugh, Goldin, & Gross, 2012).

The college sample indicated heightened levels of both social anxiety and problematic drinking. Specifically, the scores on the SIAS indicated that 45.3% ($n = 48$) of the students showed heightened levels of social anxiety. This is drastically higher than the expected. Other research has found that the rate of social anxiety disorder is approximately 19% in undergraduate students (Van Ameringen, Mancini, & Farvolden, 2003; Beidel, Turner, Stanley, & Dancu, 1989), while other studies have found the prevalence rates of social anxiety in college students to be as high as 33%. The general population's prevalence of 7 to 13% (Russell & Shaw, 2009) indicates that our population had a drastically heightened level of social anxiety compared to the average population. The scores also indicated that 50% ($n = 53$) of the students reported hazardous levels of drinking. This would be expected due to the drinking culture found in college.

Zero-order correlations between the main study variables (see Table 2) were used to test Hypothesis 1. Social anxiety (SIAS) had an insignificant positive correlation with problematic drinking using the AUDIT ($r = .11, p = .26$). Alcohol expectancies specific

to socially evaluative situations using the AESES ($r = .24, p < .05$), fear of negative evaluation using the Brief Fear of Negative Evaluation Scale-II ($r = .46, p < .01$), and fear of positive evaluation using the Fear of Positive Evaluation Scale ($r = .63, p < .01$). General positive alcohol outcome expectancies using the CEOA ($r = .253, p < .01$) had a significant positive correlation with problematic drinking.

Independent samples *t*-tests (see Table 3) were conducted to compare males and females on the measured variables. Analyses showed that males ($n = 28, M = 33.43, SD = 11.54$) had a significantly higher level of problematic drinking compared to that of females ($n = 78, M = 10.71, SD = 6.25$), $t(104) = 2.014, p = .047$, 95% CI [.044, 5.69]. There were no other significant sex differences among the measured variables.

Put some header here – Primary Analyses?

Path analysis was used to investigate the hypothesis that alcohol expectancies specific to socially evaluative situations (AESES) mediates the relationship between social anxiety and problematic drinking. Prior to the mediation analysis, social anxiety was not significantly related to problematic drinking, $b = 0.111, p = .204$. Baron and Kenny (1986) have asserted that mediation cannot be tested if the direct effect is not significant. Conversely, many researchers subsequently have posited that the direct effect is not necessary when testing mediation and that the indirect effect is of importance regardless of the significance of the direct effect (Hayes & Preacher, 2014; Preacher & Hayes, 2004; Zhao, Lynch, and Chen, 2010). Results indicated that social anxiety was a significant predictor of AESES, $b = 0.236, p = .024$, and that AESES was a significant predictor of problematic drinking, $b = 0.406, p < .001$. These results support the mediation hypothesis. The insignificant relationship between social anxiety and

problematic drinking was weakened after controlling for the mediator, AESES, $b = .016$, $p = .858$. The indirect effect was tested using a bootstrap estimation approach with 5000 samples. Bootstrapping is a resampling technique where one randomly samples with replacement from the collected sample data, which is treated as if it is a proxy population. It is a way of understanding the accuracy of results by creating confidence intervals. These results indicated that the indirect effect was significant, $b = 0.096$, $p = .032$, 95% CI [0.015, 0.190].

Path analysis was used to investigate the hypothesis that general positive alcohol outcomes expectancies (CEOAP) mediates the effect of social anxiety on problematic drinking. Prior to the mediation analysis, social anxiety was not significantly related to problematic drinking, $b = 0.111$, $p = .204$. Results indicated that social anxiety was not a significant predictor of CEOAP, $b = 0.167$, $p = .168$, and that CEOAP was a significant predictor of problematic drinking, $b = 0.241$, $p = .006$. These results do not support the mediation hypothesis. The relationship between social anxiety and problematic drinking was weakened after controlling for the mediator, CEOAP, $b = .071$, $p = .412$. The indirect effect was tested using a bootstrap estimation approach with 5000 samples. These results indicated that the indirect effect was not significant, $b = 0.040$, $p = .236$, 95% CI [-0.021, 0.120].

Parallel mediation in a path analysis was used to investigate the hypothesis that alcohol expectancies specific to socially evaluative situations (AESES) was a stronger mediator for the relationship between social anxiety and problematic drinking compared to general positive alcohol outcome expectancies (CEOAP). Results indicated that social anxiety was a significant predictor of AESES, $b = 0.235$, $p = .03$, and that AESES was a

significant predictor of problematic drinking, $b = 0.463, p < .001$. Results also indicated that social anxiety was not a significant predictor of CEOAP, $b = 0.167, p = .18$, and that CEOAP was not a significant predictor of problematic drinking, $b = -0.080, p = .47$. These results support the hypothesis that AESES is a stronger mediator than CEOAP. The results indicated that the indirect effect for AESES was significant, $b = 0.109, p = .045$. However, the indirect effect for CEOAP as the mediator was not significant, $b = -.0013, p = .587$. Though stronger, the mediating effect of AESES was not significantly different from that of CEOAP, $b = 0.122, p = 0.088$. Having social anxiety was associated with approximately a 12.2 percent increase per point on problematic drinking measures when mediated by AESES compared to CEOAP as the mediator.

To test the hypothesized predictors of problematic drinking, a hierarchical multiple regression analysis was conducted. Tests for multicollinearity were indicative of low levels of multicollinearity in the independent variables (see Table 4). Demographics and social anxiety were controlled for in the first block to allow subsequent blocks to consist of possible mechanisms for the relationship between social anxiety and problematic drinking. Fear of negative evaluation, fear of positive evaluation, and AESES were added in the second block. Results of the regression analysis provided partial support for the research hypothesis.

Discussion

This study examined the possible link between social anxiety and problematic drinking in a college sample. Specifically, the study evaluated the mediating effect of alcohol outcome expectancies specific to socially evaluative situations on the relationship between social anxiety and problematic drinking. These relationships are important

considering that previous research has shown elevated levels of both social anxiety and problematic drinking in college sample (Beidel, Turner, Stanley, & Dancu, 1989; Schry, Roberson-Nay, & White, 2012; Van Ameringen, Mancini, & Farvolden, 2003).

Similarly, our study showed that 45.3% ($n = 489$) of students had elevated levels of social anxiety, and 50% ($n = 53$) of students' scores indicated hazardous or harmful alcohol use.

Social Anxiety, Alcohol Outcome Expectancies, and Problematic Drinking

As expected, social anxiety was significantly correlated with positive alcohol outcome expectancies likely due to socially anxious individuals believing that alcohol will have a tension-reduction effect. However, social anxiety was not correlated with problematic drinking. Positive alcohol outcome expectancies were positively correlated with problematic drinking. This correlation is commonly found in the literature (Brown, Goldman, Inn, & Anderson, 1980; Goldman, Del Boca, & Darkes, 1999; Ham, Carrigan, Moak, and Randall, 2005; Kidorf & Lang, 2009). Unfortunately, there was not a significant correlation between social anxiety and problematic drinking. There may be a few explanations for this outcome. First, this lack of a relationship may be due to the mediating effect of positive alcohol outcome expectancies. Our model indicates that alcohol outcome expectancies specific to socially evaluative situations significantly mediates the relationship between social anxiety and problematic drinking. This finding suggests that the relationship between the two constructs is only indirect and not direct. This means that there is complete mediation, meaning that the entire effect of social anxiety on problematic drinking is mediated by alcohol outcome expectancies specific to socially evaluative situations.

Second, this finding is common in the literature. The literature has shown mixed results when examining the association between social anxiety and drinking behaviors. Some studies have found that there is not relationship between the two constructs (Buckner, Bonn-Miller, Zvolensky, & Schmidt 2007). The prevalence of mixed results when studying this relationship may suggest that better measurements are necessary or that other variables, such as alcohol outcome expectancies, may impact the relationship.

When we began our research, we were among the first researchers to consider the mediating effect of alcohol outcome expectancies on the relationship between social anxiety and problematic drinking behaviors. Prior research has shown that alcohol outcome expectancies mediate or moderate the relationship between a multitude of latent variables and drinking behaviors (Anthenien, Lembo, & Neighbors, 2017; Urbán, Kökönyei, & Demetrovics, 2008). Despite the insignificant positive relationship between social anxiety and problematic drinking, results showed that alcohol outcome expectancies specific to socially evaluative situations was a significant mediator for the relationship between social anxiety and problematic drinking. As stated above, this may explain why the relationship between social anxiety and problematic drinking were insignificant. The relationship may only occur when individuals have positive alcohol outcome expectancies specific to socially evaluative situations. This finding indicates that socially anxious individuals' problematic drinking may be explained by specific positive alcohol outcome expectancies.

Recently, Papachristou and colleagues (2018) found positive alcohol outcome expectancies to mediate the effect of social anxiety on alcohol drinking in college students. Though similar results have now been found, our research adds a multitude of

different aspects to the existing literature. We are among the first researchers to compare a general alcohol expectancy measure with an alcohol outcome expectancy measure specific to socially evaluative situations. Our results showed that alcohol outcome expectancies specific to socially evaluative situations was a stronger mediator than that of general positive alcohol outcome expectancies. This finding may indicate that previous research has failed to specify the context of the alcohol outcome expectancies. Past research focused solely on general alcohol outcome expectancies. Results show that this focus may have been a major limitation to their studies. This study's findings indicate that measuring alcohol outcome expectancies in socially anxious individuals should be specific to socially evaluative situations rather than general situations.

Clinical Implications

There are a multitude of clinical implications that could result from this research. The mediation effect found in this study can help colleges and clinicians better understand the reasoning behind socially anxious students' problematic drinking behaviors. The research shows that alcohol outcome expectancies are an important variable to measure when linking social anxiety to problematic drinking in college samples. This result may also help colleges create more effective and specified interventions for problematic drinking in college populations. Instead of focusing on only the problematic drinking problem, it may be best to look at the alcohol outcome expectancies that the students may hold and also the context they may hold the expectancies in. The findings that alcohol outcome expectancies specific to socially evaluative situations was a stronger mediator than that of general positive alcohol outcome expectancies may be useful for not only researching these constructs but also for

evaluating the cause for hazardous drinking behaviors in socially anxious college students. These results may also indicate that even if there is not a specific link between an individual's social anxiety and problematic drinking, there may be an indirect link that occurs through their alcohol outcome expectancies that they hold.

Limitations and Future Research

Our study had multiple limitations. First, we used a convenience sample that was taken from a student pool in a Midwestern university. Though this sample may be an ideal population in which to study risks for alcohol problems, the lack of diversity in demographic variables and school-related variables may have caused the research to lack generalizability to the college student population as a whole. Though we lacked diversity in terms of sex, marital status, and school major, we did have a somewhat racially diverse sample.

Second, we had a small sample of only 106 students. Though this sample size falls under the acceptable rule of thumb stated by Boomsma (1983;1985), it is still on the lower side of the recommendation and may have been slightly small due to the high number of parameters measured in the study. Our sample was much larger but was trimmed down due to missing data and lack of effort.

Third, the measures we used may not have been the strongest assessments for the constructs we wanted to measure. We used a social anxiety scale on a population that may have lacked clinically-significant levels of social anxiety, making the measure less likely to have significant results. Though, when referencing the SIAS cutoffs (Mattick & Clarke, 1998), 45.3% ($n = 48$) of scores indicated heightened levels of social anxiety. We also used a self-report measure for problematic drinking. It is difficult to measure

problematic drinking in a college population for a multitude of reasons. In a college population such as the one we used, it is likely that many students may have overreported or underreported their drinking behaviors. The AUDIT also has been criticized as being vague, and there may be better instruments to measure problematic drinking. When referencing the recommended cutoffs for the AUDIT (Babor, La Fuente, Saunders, & Grant, 1992), 50% ($n = 53$) of our sample's scores indicated hazardous r harmful alcohol use showing that we had a relatively high percentage of participants engage in problematic drinking.

According to our study, future research involving both social anxiety and alcohol outcome expectancies should use the AESES to measure the alcohol outcome expectancies. Our research showed that the AESES was a better overall measure when specifically looking at the relationship between social anxiety and problematic drinking. It makes sense that using a measure more tailored to socially evaluative situations would result in stronger results.

We would also recommend that future researchers find a better, more reliable means of measuring problematic drinking. Problematic drinking is not reliably measured using self-report instruments and is often over and underreported by the participants. As the research on problematic drinking continues to grow, hopefully better, more accurate measures of problematic drinking will be created and implemented in this type of research.

Finally, we recommend using samples from multiple universities and multiple majors. Our sample was collected from a midwestern university's psychology pool of students. Future research would benefit from a more diverse group of students. Future

samples will hopefully have diversity in terms of race, gender, academic major, and other demographic variables.

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*Table 1**Descriptive Statistics for each Measure*

Variable	N	Minimum	Maximum	Mean	SD	α
SIAS	106	1.00	72.00	31.66	14.69	.904
BFNE	106	12.00	60.00	34.66	12.33	.949
FPES	106	.00	72.00	31.29	14.99	.805
CEOA-Positive	106	20.00	79.00	57.96	11.94	.902
AESES	106	10.00	50.00	32.83	10.59	.919
AUDIT	106	.00	25.00	8.60	6.56	.871

*Table 2**Correlation Between Variables*

Variable	1	2	3	4	5	6
1. SIAS	---					
2. BFNE	.457**	---				
3. FPES	.626**	.338*	---			
4. CEOA-Positive	.167	.293*	.164	---		
5. AESES	.236*	.322*	.212*	.714**	---	
6. AUDIT	.111	.110	.119*	.253**	.409*	---

** $p < .01$, * $p < .05$

*Table 3**t-test Results Comparing Males and Females On Each Variable*

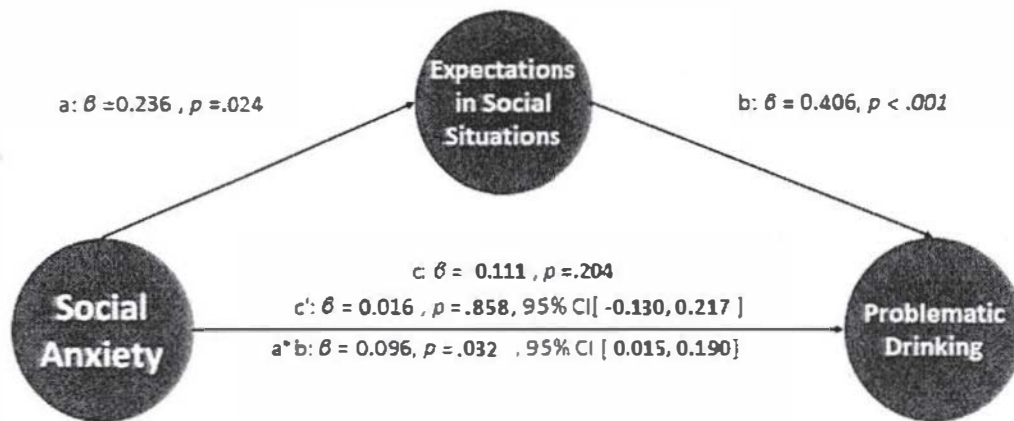
	Males	Females
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Variable	n	M	SD	n	M	SD	<i>t</i> -test	<i>p</i>
SIAS	28	30.75	13.98	78	31.98	15.01	-3.79	.706
BFNE	28	32.36	7.76	78	35.49	13.55	-1.48	.144
FPES	28	27.82	14.80	78	32.55	14.96	-1.44	.154
CEOA-Positive	28	56.71	10.42	78	58.41	12.48	-.642	.522
AESES	28	33.43	11.54	78	32.62	10.31	.344	.732
AUDIT	28	10.71	6.25	78	7.85	6.25	2.01	.047

*Table 4**Results for Hierarchical Regression Analyses*

Steps	Variable	Unstandardized		Standardized	<i>p</i>	<i>F</i>	<i>R</i> ²	ΔR^2
		Coefficient		Coefficient				
		B	SE	B				
1	-	-	-	-	-	1.247	.070	
	Sex	-2.79	1.45	-.189	.057			
	Age	-.367	.757	-.074	.629			
	Year	.966	1.14	.131	.397			
	Race	-.628	.814	-.090	.443			
	Marital	2.674	2.48	.125	.283			
	SIAS	0.58	0.44	.130	.188			
2	-	-	-	-	-	2.926	.004	.145
	Sex	-2.67	1.38	-.181	.038			

Age	-.101	.718	-.020	.718
Year	.694	1.06	.094	.450
Race	-.401	.768	-.057	.454
Marital	1.808	2.32	.084	.284
SIAS	-.003	.056	-.008	.901
FNE	-.012	.057	-.022	.452
FPE	.037	.052	.084	.355
AESES	.240	.060	3.88	.000

*Figure 1**Mediation Models*

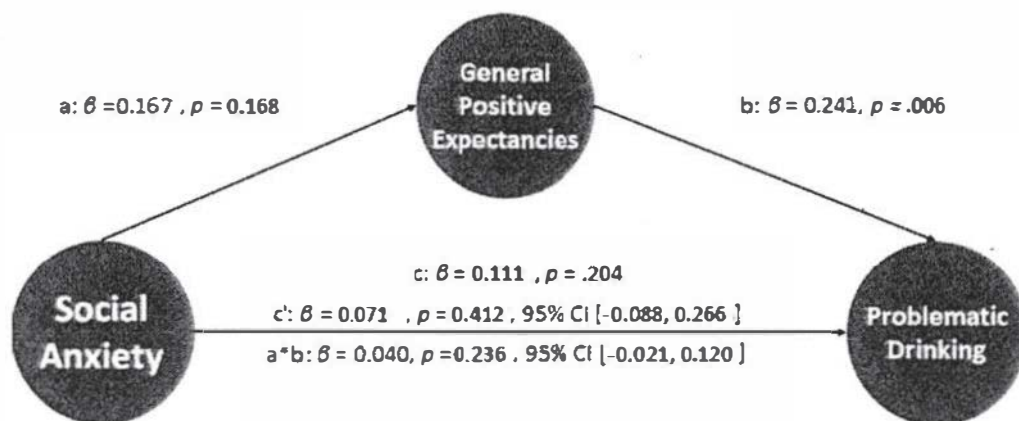
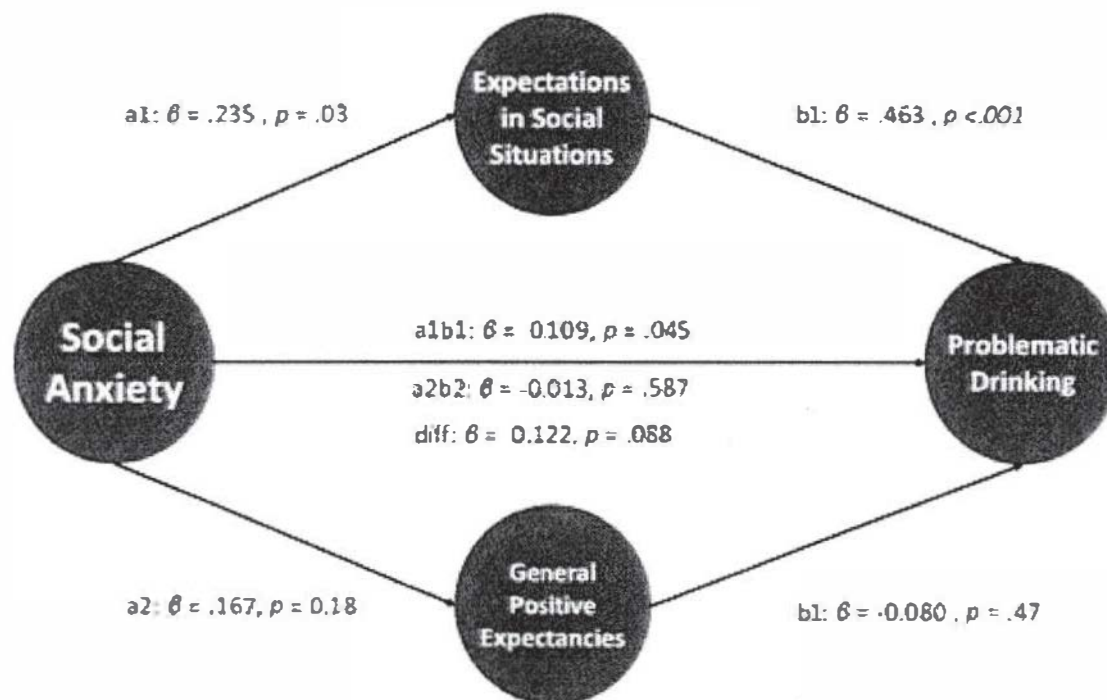


Figure 2

Parallel Mediation Model

Demographic Questionnaire

This study includes a number of questionnaires that refer to social anxiety, alcohol expectancies, fear of evaluation, and drinking behaviors. Please make sure that you read each item carefully so that you respond correctly.

What is your sex?

- Male
- Female

How old are you?

- _____

What is your year in school?

- Freshman
- Sophomore
- Junior
- Senior

How do you usually describe yourself (can choose more than one)?

- White
- Black or African American

- Hispanic or Latino/a
- Asian or Pacific Islander
- American Indian, Alaskan Native, or Native Hawaiian
- Biracial or Multiracial
- Other

What is your marital status?

- Single
- Married/Partnered
- Separated
- Divorced

Social Interaction Anxiety Scale

Items will have the following rating scale:

- 0 – Not at all characteristic or true of me
- 1 - Slightly characteristic or true of me
- 2 – Moderately characteristic or true of me
- 3 – Very characteristic or true of me
- 4 – Extremely characteristic or true of me

1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.)
2. I have difficulty making eye-contact with others
3. I become tense if I have to talk about myself or my feelings
4. I find it difficult mixing comfortably with the people I work with
5. I find it easy making friends of my own age*
6. I tense-up if I meet an acquaintance in the street
7. When mixing socially, I am uncomfortable
8. I feel tense if I am alone with just one person
9. I am at ease meeting people at parties, etc.*
10. I have difficulty talking with other people
11. I find it easy to think of things to talk about*
12. I worry about expressing myself in case I appear awkward
13. I find it difficult to disagree with another's point of view
14. I have difficulty talking to attractive persons of the opposite sex
15. I find myself worrying that I won't know what to say in social situations

16. I am nervous mixing with people I don't know well
17. I feel I'll say something embarrassing when talking
18. When mixing in a group I find myself worrying I will be ignored
19. I am tense mixing in a group
20. I am unsure whether to greet someone I know only slightly

Brief Fear of Negative Evaluation Scale

Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale:

1 = Not at all characteristic of me

2 = Slightly characteristic of me

3 = Moderately characteristic of me

4 = Very characteristic of me

5 = Extremely characteristic of me

1. I worry about what other people will think of me even when I know it doesn't make any difference.
2. It bothers me when people form an unfavorable impression of me.
3. I am frequently afraid of other people noticing my shortcomings.
4. I worry about what kind of impression I am making on someone.
5. I am afraid others will not approve of me.
6. I am afraid that people will find fault with me.
7. I am concerned about other people's opinions of me.
8. When I am talking to someone, I worry about what they may be thinking about me.
9. I am usually worried about what kind of impression I make.
10. If I know someone is judging me, it tends to bother me.
11. Sometimes I think I am too concerned with what other people think of me.
12. I often worry that I will say or do the wrong things.

Fear of Positive Evaluation Scale

Read each of the following statements carefully and answer the degree to which you feel the statement is characteristic of you, using the following scale. For each statement, respond as though it involves people that you do not know very well. Rate each situation from 0 to 9. Please fill in only one bubble for each statement.

1. I am uncomfortable exhibiting my talents to others, even if I think my talents will impress them.
2. It would make me anxious to receive a compliment from someone that I am attracted to.
3. I try to choose clothes that will give people little impression of what I am like.
4. I feel uneasy when I receive praise from authority figures.
5. If I have something to say that I think a group will find interesting, I typically say it.
6. I would rather receive a compliment from someone when that person and I were alone than when in the presence of others.
7. If I was doing something well in front of others, I would wonder whether I was doing "too well".
8. I generally feel uncomfortable when people give me compliments.
9. I don't like to be noticed when I am in public places, even if I feel as though I am being admired.
10. I often feel under-appreciated, and wish people would comment more on my positive qualities.

CEOA

Responses choices were:

1 – Disagree; 2 – Slightly disagree; 3 – Slightly agree; 4 – Agree

When I drink alcohol I would expect that _____:

1. I would be outgoing
2. My senses would be dulled
3. I would be humorous
4. My problems would seem worse
5. It would be easier to express my feelings
6. My writing would be impaired
7. I would feel sexy
8. I would have difficulty thinking
9. I would neglect my obligations
10. I would be dominant
11. My head would feel fuzzy
12. I would enjoy sex more
13. I would feel dizzy
14. I would be friendly
15. I would be clumsy
16. It would be easier to act out my fantasies
17. I would be loud, boisterous, or noisy
18. I would feel peaceful
19. I would be brave and daring

20. I would feel unafraid
21. I would feel creative
22. I would be courageous
23. I would feel shaky or jittery the next day
24. I would feel energetic
25. I would act aggressively
26. My responses would be slow
27. My body would be relaxed
28. I would feel guilty
29. I would feel calm
30. I would feel moody
31. It would be easier to talk to people
32. I would be a better lover
33. I would feel self-critical
34. I would be talkative
35. I would act tough
36. I would take risks
37. I would feel powerful
38. I would act sociable

Alcohol Expectancies for Social Evaluative Situations Scale (AESES)

Directions: This is a questionnaire of your perceptions about the effects of alcohol. Please read each statement carefully and then rate the degree to which the effect is "true" for you using the scale below. When the statements mention "drinking alcohol," or just "drinks," this refers to any alcoholic beverage such as beer, wine, whiskey, gin, vodka, wine coolers, and any type of regular or sweet mixed drink. Regardless of the amount of your actual drinking experience, please answer according to what you believe the effect is or would be for you. Please rate all of the items using the following key:

1 = Not at all true

2 = A little true

3 = Somewhat true

4 = Frequently true

5 = Very much true

_____ 1. I don't worry as much about what people are thinking about me when I am drinking.

_____ 2. When I am drinking, it doesn't bother me as much if people are looking at me.

_____ 3. When I am drinking alcohol, I feel freer to be myself and do whatever I want.

_____ 4. It is easier to start a conversation with someone if I have had a few drinks.

_____ 5. I feel more comfortable in a large group situation when I am drinking.

_____ 6. I think less about saying or doing something embarrassing in front of others when I have had a few drinks.

_____ 7. After a few drinks, I feel more confident when telephoning someone.

_____ 8. I think less about what others might think about my physical appearance when I've had a few drinks.

_____ 9. After I have a few drinks, I feel more comfortable talking to people.

_____ 10. After a few drinks, I feel more at ease when talking to someone.

AUDIT

Please choose the answer that is correct for you

1. How often do you have a drink containing alcohol?

- Never · Monthly or less · 2-4 times a month · 2-3 times a week · 4 or more times a week

2. How many standard drinks containing alcohol do you have on a typical day when drinking?

- 1 or 2 · 3 or 4 · 5 or 6 · 7 to 9 · 10 or more

3. How often do you have six or more drinks on one occasion?

- Never · Less than monthly · Monthly · Weekly · Daily or almost daily

4. During the past year, how often have you found that you were not able to stop drinking once you had started?

- Never · Less than monthly · Monthly · Weekly · Daily or almost daily

5. During the past year, how often have you failed to do what was normally expected of you because of drinking?

- Never · Less than monthly · Monthly · Weekly · Daily or almost daily

6. During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?

- Never · Less than monthly · Monthly · Weekly · Daily or almost daily

7. During the past year, how often have you had a feeling of guilt or remorse after drinking?

- Never · Less than monthly · Monthly · Weekly · Daily or almost daily

8. During the past year, have you been unable to remember what happened the night before because you had been drinking?

· Never · Less than monthly · Monthly · Weekly · Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

· No · Yes, but not in the past year · Yes, during the past year

10. Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?

· No · Yes, but not in the past year · Yes, during the past year